

MERCER COUNTY COMMUNITY COLLEGE

COURSE OUTLINE

AVI 216  
COURSE NUMBER

Flight V  
COURSE TITLE

4  
CREDITS

2  
CLASS HOURS

3  
LABORATORY HOURS

TEXT: Owner's and Operator's Manual of Aircraft Used in Training C-152, C-172, C-172RG  
Instrument Flying Handbook FAA-H-8083-15  
Airplane Flying Handbook FAA-H-8083-3  
Commercial Pilot Practical Test Standards (CPTS), Instrument Pilot PTS  
FAR - AIM (Latest edition)

70 Hours Flight Training or the time needed to meet Practical Test Standards - 45 Hours Primary Aircraft, 10 Hours Complex Aircraft, 15 Hours Instrument/including 6 Hours in a Flight Training Device

CATALOG DESCRIPTION

This course is limited to only a Helicopter Rated Commercial Certificated Instrument Rated Pilot. The student is expected to acquire the aeronautical skill necessary to meet the requirements for the Single Engine Land, and Commercial Certificate with an Instrument Rating. This course consists of 70 hours of flight training or the time needed to meet Practical Test Standards. A special fee is required as described in section on Tuition and Fees. A student must complete the ground lessons and progress check 70 to fulfill the requirements of the course. All prior lessons and progress checks must be completed.

FAA Approved Medical & Helicopter Commercial Certificate with an Instrument Rating

PREREQUISITE

Lesson Progress Checks:

- |                                  |   |
|----------------------------------|---|
| _____ 7 Flt Maneuver Review      | _____ 34 Instrument FTD                     |
| _____ 11 Post - solo Review      | _____ 40 Instrument Fundamentals            |
| _____ 14 Cross Country Review    | _____ 44 Instrument XC & Fundamental Skills |
| _____ 20 Comm Maneuvers critique | _____ 55 Complex                            |
| _____ 24 Comm Maneuvers          | _____ 58 Instrument & Comm                  |
| _____ 28 Night Operator          | _____ Final Progress Check                  |

Instructor's Name \_\_\_\_\_  
Time/Location \_\_\_\_\_  
Office/Phone #'s \_\_\_\_\_  
Office Hours \_\_\_\_\_  
E-mail \_\_\_\_\_

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FLIGHT TRAINING COURSE

TRAINING SYLLABUS

FLIGHT LESSON 1 - Primary Aircraft

INSTRUCTION

## OBJECTIVES:

The student will be introduced to the training airplane, its operating characteristics, cabin controls, instruments, and systems. He will learn the preflight activities necessary to insure the airplane is safe for flight. Introduction of some basic flight maneuvers also will be accomplished to help the student learn the use of the engine and flight controls.

## CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION
2. INTRODUCTION
  - A. Preflight
  - B. Use of Checklist
  - C. Equipment and Familiarization
    - (1) First aid kit location
    - (2) First extinguisher locations
  - D. Engine Start and Warmup
  - E. Basic Radio Procedures
  - F. Pretakeoff Checklist
  - G. Straight-and-Level Flight
  - H. Medium Bank Turns (20°- 45°)
  - I. Hand Signals
  - J. Leveling off from a climb and a descent
3. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON.

## COMPLETION STANDARDS:

The student will display an understanding of the use of the checklist and safety considerations of engine starting and run-up. At the completion of this lesson, he will be able to start the engine and perform a run-up with instructor assistance. Additionally, the student will understand the control inputs necessary for leveling off and maintaining altitude in turns and level flight.

FLIGHT LESSON 2 - Primary Aircraft

INSTRUCTION

## OBJECTIVES:

This lesson has two objectives. The review portion of this flight will be conducted to determine the student's understanding of airplane control use to maintain altitude control. Further, during this lesson, the student will become familiar with the techniques for climbs, descents and maintaining specific ground tracks.

1. PREFLIGHT DISCUSSION AND ORIENTATION
2. REVIEW
  - A. Basic Radio Procedures
  - B. Equipment Familiarization
  - C. Medium Bank Turns (20°-45°)
  - D. Straight-and-level Flight
  - E. Leveling off from a climb and a descent

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## 3. INTRODUCTION

- A. Aircraft Servicing Procedures (oil, fuel, hydraulic fluid)
- B. Normal and Crosswind Taxi
- C. Normal and Crosswind Takeoffs
- D. Traffic Patterns (AIM and airport requirements)
- E. Straight-and-level Flight
- F. Climbs and Climbing Turns (VR)
- G. Glides (VR) power off 60-65 knots
- H. Level off from Climbs and Glides (VR)
- I. Minimum Controllable Airspeed
- J. Tracking a straight line
- K. Forward and side Slips
- L. Normal and Crosswind Landings
- M. Use of Mixture control

## 4. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT SESSION

## COMPLETION STANDARDS:

The student will understand the techniques used to perform straight-and-level flight, establish proper climbs and descents, and control airspeed with power and attitude. The student will be expected to enter the traffic pattern properly with the instructor's aid. He will perform all preflight activities, including engine start, taxi, and engine runup, with a minimum of instructor assistance. He will display an understanding of the technique used to control the airplane's ground track during crosswind conditions. Additional flight time will be assigned at this time, if needed, to meet proficiency requirements.

FLIGHT LESSON 3 - Primary Aircraft

INSTRUCTION

## OBJECTIVES:

The student will review each of the listed maneuvers and procedures to increase his proficiency. Through this review, the student's ability to control the airplane's attitude about its three axes and to maintain specific ground tracks will be increased.

## CONTENT:

## 1. PREFLIGHT DISCUSSION AND ORIENTATION

## 2. REVIEW

- A. Airplane Servicing Procedures
- B. Normal and/or Crosswind Taxi
- C. Normal and/or Crosswind Takeoff
- D. Tracking a Straight Line
- E. Medium Bank Turns
- F. Traffic Pattern Departure
- G. Straight-and-Level Flight (VR)
- H. Climbs and Climbing Turns
- I. Level off from Climbs and Glides
- J. Minimum controllable Airspeed
- K. Traffic Pattern Entry Procedures
- L. Forward and Side Slips
- M. Normal and/or Crosswind Landings

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## 3. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON

## COMPLETION STANDARDS:

The student will be able to perform climbs, glides, turns, straight-and-level flight, and flight at minimum controllable airspeed with proper coordination, while maintaining airspeed within 10 knots and heading within 20° of that desired. He will also display an understanding of how the control of airplane attitude affects altitude and heading. In addition, he must display an understanding of traffic pattern departure and entry procedures and the use of the appropriate wind correction angles necessary to maintain specific ground tracks.

FLIGHT LESSON 4 - Primary Aircraft

INSTRUCTION

## CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION
2. REVIEW
  - A. Use of Checklist
  - B. Basic Radio Communication Procedures
  - C. Engine Starting
  - D. Straight-and-Level Flight (VR)
  - E. Use of Mixture Control
  - F. Medium Bank Turns (VR)
  - G. Climbs and Climbing Turns (VR)
  - H. Glides and Gliding Turns (VR)
  - I. Level off Procedures
  - J. Minimum Controllable Airspeed
3. INTRODUCTION
  - A. Best Rate and Obstacle Clearance Climbs and Turns
  - B. Steep turns
  - C. Descents and Descending Turns
  - D. Airspeed and Configuration Changes
  - E. Minimum Controllable Airspeed
  - F. Stalls with Power Off and Flaps Up

## 4. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON

## COMPLETION STANDARDS:

Proficiency in maintaining airspeed within 10 knots of appropriate airspeeds during the performance of all maneuvers will be expected. Loss or gain of altitude will be restricted to within 200 feet and heading control within 20° while in straight-and-level flight.

FLIGHT LESSON 5 - Primary Aircraft

INSTRUCTION

## OBJECTIVES:

The student will continue to gain proficiency in those maneuvers listed as review. In addition, he will become familiar with ground reference maneuvers which reinforce the student's ability to correct for wind drift. Takeoff and departure stalls and collision avoidance will be introduced to teach safety of flight. In addition, stall awareness, spin entry, spins and spin recovery

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techniques will be discussed and Logged on the folder and endorsed in the logbook.

CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION

Stall awareness, spin entry, spins and spin recovery techniques will be discussed. Coordinated control inputs will be emphasized; i.e., ball centered.

2. REVIEW

- A. Straight-and-Level Flight
- B. Tracking a Straight Line
- C. Medium Bank Turns
- D. Minimum controllable Airspeed
- E. Normal and/or Crosswind Takeoffs
- F. Traffic Patterns
- G. Stalls with Power Off
- H. Steep Turns
- I. Normal and/or Crosswind Landings

3. INTRODUCTION

- A. S-Turns Across a Road
- B. Turns About a Point and Rectangular Courses
- C. Approach-to-Landing Stalls
- D. Takeoff and Departure Stalls
- E. Collision Avoidance Procedures
- F. Critical Attitude Recovery

4. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON

COMPLETION STANDARDS:

The student will understand the execution of ground reference maneuvers. He will be able to discuss, with understanding, the proper techniques for wind drift correction and entry to maneuvers. Additionally, he will be able to maintain a specific ground track while in straight flight. Takeoff and departure stalls will be performed without harsh or abrupt control usage during recovery and with a minimum loss of altitude.

FLIGHT LESSON 6 - Primary Aircraft

INSTRUCTION

OBJECTIVES:

The student will practice each of the review items to gain proficiency. He will learn emergency procedures to cope with unusual situations. Also, procedures used to change airspeed and configuration of the aircraft will be practiced so the student will learn to control the aircraft's attitude at various airspeeds.

CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION

2. REVIEW

- A. Best Rate-of-Climb Turns
- B. Obstacle Clearance Climbs and Turns

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- C. Minimum Controllable Airspeed
- D. Turns About a Point
- E. Stall Series

3. INTRODUCTION

- A. Simulated Engine Failure
- B. Steep Turns

4. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON

COMPLETION STANDARDS:

The student will display, through performance and discussion, complete understanding of possible emergencies and the procedures necessary for safe conduct of flight. During changes in airspeed and configuration, altitude will be maintained within 175 feet and heading within 20°.

FLIGHT LESSON 7 - Primary Aircraft

INSTRUCTION

During this flight, the Chief Instructor or his assistant will conduct a progress check to determine that the student can perform the review maneuvers adequately to proceed to the next block of training.

Additionally, aborted landing procedures will be introduced and three takeoffs and landings will be accomplished to prepare the student for airport operations. The pre-solo written examination will be given before this progress check. The passing of this examination will be logged in the log book and the test placed in the student's record.

CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION

2. REVIEW

- A. Medium Bank Turns (VR)
- B. Climbs, Vx, Vy, Enroute (VR)
- C. Obstacle Clearance Climbs (VR)
- D. Stall Series
- E. Steep Turns (VR)
- F. Simulated Engine Failure
- G. Airspeed and Configuration Changes
- H. Normal and Crosswind Takeoffs and Landings

3. INTRODUCTION

- A. Go-Around Procedures
- B. Accelerated Stalls

4. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON

COMPLETION STANDARDS:

The student will perform proficiently all of the basic flight maneuvers. He will demonstrate the ability to maintain altitude within 150 feet, heading within 15° and airspeed control within 5 knots of preselected airspeed. Evaluation will be based on smoothness and judgment in all maneuvers. Additional flight time will be assigned, if needed, to meet proficiency requirements.

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## FLIGHT LESSON 8 - Primary Aircraft

## INSTRUCTION

## OBJECTIVES:

During this lesson, the student will review each of the listed maneuvers to gain proficiency in preparation for solo flight. Additionally, to further prepare the student for solo flight, wake turbulence avoidance and electrical system emergencies are introduced.

## CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION
  - A. Simulated engine failure on takeoff, initial climb, cruise, descent, and landing pattern.
  - B. Aircraft and personal documents.
2. REVIEW
  - A. Medium Bank Turns
  - B. Best Rate of Climb and Turns
  - C. Obstacle Clearance Climb
  - D. Stall Series, including accelerated stall
  - E. Steep Turns
  - F. Simulated Engine Failure
  - G. Airspeed and Configuration Changes
  - H. Ground reference maneuvers
3. INTRODUCTION
  - A. Wake Turbulence Avoidance
  - B. Electrical System Failure
  - C. Electrical Fire and Smoke
  - D. Inoperative Elevator Trim
4. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON

## COMPLETION STANDARDS:

At the completion of this lesson, the student will demonstrate the correct procedures for wake turbulence avoidance and the handling of electrical system emergencies. In addition, he will be able to perform each of the basic maneuvers listed in the review and demonstrate the ability to maintain altitude within 150 feet, heading within 10° and airspeed within 5 knots of that desired.

## FLIGHT LESSON 9 - Primary Aircraft

## INSTRUCTION

## OBJECTIVES:

During this lesson, the student will practice those maneuvers and procedures listed as review to gain the proficiency necessary for solo flight. This lesson will include pattern practice at the Mercer County Airport.

## CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION
2. REVIEW
  - A. Straight-and-Level Flight (VR)
  - B. Medium Bank Turns (VR)
  - C. Minimum Controllable Airspeed (VR)

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- D. Normal and/or crosswind Takeoffs
- E. Stall Series
- F. Steep turns (VR)
- G. S-Turns Across a Road
- H. Turns About a Point
- I. Traffic Pattern
- J. Normal and/or Crosswind Landings
- K. Wake Turbulence Avoidance

### 3. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON

#### COMPLETION STANDARDS:

The student will display skill and understanding in the execution of all maneuvers and procedures practiced. During ground reference maneuvers, he will use proper wind drift correction and display proper use of aircraft controls for coordination. Where appropriate, altitude will be maintained within 125 feet, airspeed within 5 knots of the desired speed, and heading within 10° of the preselected heading.

FLIGHT LESSON 10 - Primary Aircraft

INSTRUCTION/SUPERVISED SOLO

#### COMPLETION STANDARDS:

The student will demonstrate the ability to plan a safe, local, solo flight. In addition, he will display an understanding of solo flight limitations.

#### OBJECTIVES:

During this lesson, the student will demonstrate his ability to safely operate the airplane in the local airport traffic pattern, as sole occupant. In addition, he will complete a supervised solo flight.

#### CONTENT:

### 1. PREFLIGHT DISCUSSION AND ORIENTATION

### 2. REVIEW

- A. Medium Bank Turns
- B. Best Rate of Climb
- C. Obstacle Clearance Climb
- D. Stall Series from various flight attitudes and power combinations with recovery from imminent and full stalls
- E. Steep Turns
- F. Simulated Engine Failure on takeoff and ground roll during initial climb (verbal procedures only), descent, cruise, pattern
- G. Airspeed and Configuration Changes
- H. Normal and Crosswind Takeoffs and landings
- I. Go-Around Procedures from final approach and landing flare in various flight configurations including turns
- J. Slips to a landing
- K. No flap landings

### 3. INTRODUCTION

- A. Supervised Solo in the Traffic Pattern

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## 4. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON

## COMPLETION STANDARDS:

The student will display the ability to successfully perform and exercise the privileges of solo operation of the aircraft, enabling him to make his first solo flight safely. He will complete this solo flight in the traffic pattern.

FLIGHT LESSON 11 - Primary Aircraft

INSTRUCTION AND SOLO

## OBJECTIVES:

The first part of this lesson will be conducted as a progress check by the Chief Instructor or his assistant to determine that the student can safely operate the aircraft as sole occupant. A written examination will precede this flight. The examination must be completed and passed before this flight.

## CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION
2. REVIEW
  - A. Minimum controllable Airspeed
  - B. Stall Series
  - C. Traffic Pattern Entry and Departure
  - D. Normal and Crosswind Landings and Takeoffs
  - E. Collision Avoidance Procedures
  - F. Ground reference maneuvers
3. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON

## COMPLETION STANDARDS:

The student will display the proficiency and competency required to act as pilot in command of the aircraft on subsequent solo flights. An understanding and demonstration of proper radio procedures, traffic procedures on the ground, and traffic pattern entry and departure at the airport will be required.

FLIGHT LESSON - 12

INSTRUCTION

## OBJECTIVES:

Through this dual Day - VFR cross-country flight, the student will learn proper method for incorporating into cross-country operations, the piloting skills and knowledge areas learned previously. The student will learn the proper step-by-step procedures for planning and conducting cross-country flights. In addition to the close supervision and aid the student will receive during this flight, he will be evaluated carefully on all maneuvers and procedures to determine his ability to conduct a cross-country flight as the solo occupant of the airplane.

This lesson will meet the two-hour dual flight requirement including pilotage, dead reckoning and radio aids. Part of this route must be on a federal highway.

- a. 17A will be TTN-ABE-DYL-TIN
- b. 17B will be TTN-MIV-ACY-TTN
- c. 17C, if required, will be TTN-RDG-UKT-TTN

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## CONTENT:

## 1. PREFLIGHT DISCUSSION AND ORIENTATION

- A. Flight Preparation
  - (1) Weather analysis and notices to airmen
  - (2) Navigation log
  - (3) Airports
  - (4) Aircraft performance and loading
  - (5) FAA Flight Plan

## 2. REVIEW

- A. Straight-and-Level Flight
- B. Climbs and Climbing Turns
- C. Glides and Gliding Turns
- D. Leveloff Procedures
- E. Descents and Descending Turns
- F. Emergency Procedures
- G. Airspeed and Configuration Changes
- H. Short-Field and Soft-Field Takeoffs
- I. Short-Field and obstructed Landing
- J. Enroute Radio Procedures
- K. VOR Tracking
- L. VOR Position Finding
- M. Critical Attitude Recovery

## 3. INTRODUCTION

- A. Three-Leg, One-Day, Cross-Country Flight
  - (1) Pilotage navigation-all three legs
  - (2) Dead reckoning navigation-all three legs
  - (3) VOR radio navigation-on two legs
  - (4) ADF radio navigation
- B. Departure
- C. Opening Flight Plan with FSS by Radio
- D. Enroute
- E. Diversion to an alternate
- F. Calculating Groundspeed
- G. Estimates of Arrival Time
- H. Emergency Procedures
  - (1) Turbulent air
  - (2) High density altitude
  - (3) Adverse weather
  - (4) Icing conditions
  - (5) Engine failure
  - (6) Lost procedures
  - (7) Low fuel
  - (8) Communications loss
  - (9) Radio navigation loss
  - (10) Instrument failure
  - (11) Over heating engine
  - (12) Engine fire
- I. Three Destination Airports
  - (1) Tower (including use of approach and departure control)
  - (2) FSS only
  - (3) UNICOM only
- J. Closing Flight Plan

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## 4. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON

## COMPLETION STANDARDS:

The student will be expected to demonstrate the ability to conduct cross-country flight operations safely as sole occupant of the airplane. Complete familiarization with proper preflight action, flight planning, weather analysis, and available publications should be displayed. The student will conduct all duties of pilot in command with smoothness, accuracy, and competence.

FLIGHT LESSON 13 - Primary Aircraft

INSTRUCTION

## OBJECTIVES:

The student will receive instruction for the dual night cross-country flight. The flight will be at least 100 NM and the remaining night T.O. and landings requirements will be accomplished. The student will plan the cross-country flight and activate a flight plan and experience the night flying conditions. This flight must be at least 2 hours of duration in night-VFR conditions.

## CONTENT:

A. The route will be TTN-MIV-ILG-TTN.

1. PREFLIGHT DISCUSSION AND ORIENTATION
2. PREPARATION
3. FLIGHT
4. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON

## COMPLETION STANDARDS:

This lesson is complete when the student has accomplished the flight as planned. After the flight, the student and instructor will discuss and correct any student problems or questions that may have arisen during the cross-country flight.

FLIGHT LESSON 14 - Primary Aircraft

INSTRUCTION

## OBJECTIVES:

This lesson consists of a progress check by the Chief Instructor or his assistant to determine the student's ability to plan and execute a cross-country flight. The student will have a cross-country flight planned and the Chief Instructor or his assistant will observe the student while he departs on the planned flight. A written examination will precede this flight. This examination must be completed and passed before this flight.

## CONTENT:

1. PREFLIGHT DISCUSSION AND ORIENTATION
  - A. Minimum equipment list and airworthiness requirements
2. REVIEW
  - A. Departure Procedures
  - B. Communications
  - C. Establishing Predetermined Ground Track

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- D. Identifying VFR Checkpoints
- E. Use of navigation Log
- F. Calculating Groundspeed
- G. Emergency Procedures
- H. Diversion
- I. Class "D" full stop landings utilizing ground control

### 3. POSTFLIGHT DISCUSSION AND PREVIEW OF NEXT LESSON

#### COMPLETION STANDARDS:

The student will demonstrate the ability to conduct cross-country flights as the sole occupant of the airplane. He will display competent performance in all maneuvers specified for cross-country purposes and an understanding of the principles which will insure safety during cross-country flight.

FLIGHT LESSON 15 - Primary Aircraft

INSTRUCTION

#### OBJECTIVES:

The student will learn the techniques used to enter and control the bank angle during steep power turns and steep spirals, and the techniques used to judge altitude during accuracy landing approaches. This knowledge will aid the student in learning to control the airplane near its performance limits.

#### CONTENT:

1. PREFLIGHT ORIENTATION
2. INTRODUCTION
  - A. Steep Power Turns (50°Bank)
  - B. Steep Spirals
  - C. Accuracy Landings
  - D. Lazy Eights
  - E. Chandelle

### 3. POSTFLIGHT DISCUSSION

#### COMPLETION STANDARDS:

At this stage of instruction, the student will be graded primarily on his understanding of the advanced maneuvers rather than his performance. During the steep power turns, the student should understand the techniques necessary to hold the bank within + 15°, altitude within 250 feet, and roll-out within + 15°. During the steep spirals, the student should be able to demonstrate an understanding of the techniques necessary to hold the heading, upon recovery, within a + 20° and the airspeed within + 10 knots. Acceptable performance for accuracy landings should be such that the student does not undershoot the selected point on the runway and the student should understand the techniques required to affect a landing within 200 feet beyond the designated mark.

FLIGHT LESSON 16 - Primary Aircraft

INSTRUCTION

#### OBJECTIVES:

During Flight Lesson 16, the student will review flight maneuvers to gain proficiency and increase his understanding of the performance criteria of each maneuver.

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## CONTENT:

1. REVIEW
  - A. Chandelles
  - B. Steep Power Turns
  - C. Steep Spirals<sup>oo</sup>
  - D. Accuracy Landings
  - E. Slips to Landings
  - F. Lazy Eights
2. INTRODUCE
  - A. Eights on Pylons
3. POSTFLIGHT DISCUSSION

## COMPLETION STANDARDS:

These lessons are complete when the student has performed each of the listed maneuvers. He should attempt to maintain altitude control while executing steep power turns within 250 feet, bank within 10°, and recover on a heading within 15° of the entry heading. During the execution of steep spirals, bank should be held within 10° of the desired bank, the roll-out heading should be within 10° of the entry heading, and airspeed should be 10 knots. Accuracy landings should be achieved within 200 feet of the designated mark.

FLIGHT LESSON 17 - Primary Aircraft

SOLO

## OBJECTIVES:

During this flight lesson, the student will review and practice the maneuvers learned in the previous two lessons. He will learn to control the airplane while his attention is diverted to outside references and to obtain its maximum performance while precisely controlling pitch and bank attitude.

## CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
  - A. Steep Power Turns
  - B. Steep Spirals
  - C. Accuracy Landings
  - D. Slips to a Landing
  - E. Chandelles
  - F. Lazy Eights
  - G. Eights on Pylons

## COMPLETION STANDARDS:

The student is expected to perform those maneuvers which he has had an opportunity to practice solo in a manner which demonstrates increased understanding. While executing chandelles, the student should understand how to affect a roll-out so as to complete the maneuver after 180° of turn. The airspeed, at the time of roll-out, should be within 10 knots of stalling speed. During the execution of pylon eights, the student should show reasonable proficiency in holding the pylon without the use of slips.

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## FLIGHT LESSON 18 - Primary Aircraft

INSTRUCTION

## OBJECTIVES:

During this lesson, the student will demonstrate the listed commercial maneuvers. The student will practice the listed maneuvers to further develop his skill in flying the airplane in a smooth and coordinated manner.

## CONTENT:

1. REVIEW
  - A. Steep Power Turns
  - B. Steep Spirals
  - C. Chandelles
  - D. Lazy Eights
  - E. Accuracy Landings
  - F. Eights on Pylons

## 2. POSTFLIGHT DISCUSSION

## COMPLETION STANDARDS:

This lesson is complete when the student has performed each of the listed maneuvers. In addition, the student should realize increasing insight and precision in advanced flight maneuvers. Increased proficiency should be evident by the student's increased coordination and smooth control application. In addition, he will learn the control usage necessary to perform the lazy eight without persistent slipping.

## FLIGHT LESSON 19 - Primary Aircraft

INSTRUCTION

## OBJECTIVES:

During this lesson, the Instructor will review with the student previously learned maneuvers so any faulty areas of performance can be corrected.

## CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
  - A. Steep Power Turns
  - B. Steep Spirals
  - C. Chandelles
  - D. Accuracy Landing
    - (1) Power off with flaps
    - (2) Power off without flaps
    - (3) Power on with flaps
  - E. Lazy Eights
  - F. Eights on Pylons
3. POSTFLIGHT DISCUSSION

## COMPLETION STANDARDS:

The student must demonstrate to his instructor that he can plan and execute maneuvers in a precise, coordinated manner. Accuracy landings must be within 200' of selected touchdown points.

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## FLIGHT LESSON 20 - Primary Aircraft

## INSTRUCTION

During this Progress Check, the Chief Instructor or his Assistant will review with the student previously learned maneuvers so any faulty areas of performance can be corrected.

## CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
  - A. Steep Power Turns
  - B. Steep Spirals
  - C. Chandelles
  - D. Lazy Eights
  - E. Eights on Pylons
  - F. Accuracy Landings
    - (1) Power off with flaps
    - (2) Power off without flaps
    - (3) Power on with flaps
  - G. Emergency Procedures
3. POSTFLIGHT DISCUSSION

## COMPLETION STANDARDS:

Performance will be judged on the student's ability to plan and execute maneuvers in a precise, coordinated manner. Entry procedures, wind position, memory items in bold letters for emergency procedures, and accuracy landings within 200' of selected touchdown point represent objectives which must be demonstrated.

## FLIGHT LESSON 21 - Primary Aircraft

## INSTRUCTION

## OBJECTIVES:

During this lesson, the student will show added proficiency in the performance of advance maneuvers, and make further progress toward meeting commercial pilot - proficiency.

## CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
  - A. Steep Power Turns
  - B. Steep Spirals
  - C. Chandelles
  - D. Lazy Eights
  - E. Eights on Pylons
  - F. Accuracy Landings
    - (1) Power off with flaps
    - (2) Power off without flaps
3. POSTFLIGHT DISCUSSION

## COMPLETION STANDARDS:

This lesson is complete when the student can perform a steep spiral + 10 knots of recommended as, three turns, proper entry. For steep power turns, the

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student must be able to perform two circles in the same direction + 150 feet + 10 knots and + 15° on heading. Perform this maneuver visually. The student will also increase his proficiency in the remaining maneuvers.

FLIGHT LESSON 22 - Primary Aircraft

INSTRUCTION

OBJECTIVES:

During this lesson, the student will demonstrate improved performance on the commercial maneuvers. The student will concentrate on Chandelles and Accuracy landings.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
  - A. All Commercial Maneuvers
3. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

The student at the completion of this lesson will demonstrate that he can perform chandelles and accuracy landings according to Practical Test Standards.

FLIGHT LESSON 23 - Primary Aircraft

OBJECTIVES:

During these lessons, the student will continue to practice and review commercial maneuvers.

CONTENT:

1. REVIEW
  - A. Commercial Maneuvers
  - B. Accuracy Landings
    - (1) Power off with flaps
    - (2) Power off without flaps

COMPLETION STANDARDS:

The student in the demonstration of these maneuvers should be approaching the skill level as described in Practical Test Standards.

FLIGHT LESSON 24 - Primary Aircraft

INSTRUCTION

OBJECTIVES:

This lesson will be conducted as a progress check by the Chief Instructor or his Assistant to determine the student's ability to correctly perform each of the listed maneuvers and procedures.

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## CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
  - A. Steep Power Turns
  - B. Steep Spirals
  - C. Chandelles
  - D. Lazy Eights
  - E. Short-field and Soft-field Takeoffs and Landings
  - F. Accuracy Landings
  - G. Slips to Landings
  - H. Eights on Pylons
  - I. Cross-country Planning with a Flight Log
3. POSTFLIGHT DISCUSSION

## COMPLETION STANDARDS:

At the completion of this lesson, the student will be able to perform all advanced flight maneuvers demonstrating the ability to preplan and execute the maneuver according to that plan. During the execution of the maneuvers, the student will be expected to demonstrate the ability to perform at the competency level of the Commercial Practical Test Standards.

FLIGHT LESSON 25 - Primary Aircraft

INSTRUCTION

## OBJECTIVES:

The student will be introduced to the operational and regulatory aspects of night operations. The lesson will include takeoffs and landings in the local area to prepare the student for solo night operations.

## CONTENT:

1. PREFLIGHT ORIENTATION
  - A. Aircraft Equipment (91.205) and MEL Lists (91.213)
  - B. Aircraft Lights (91.209)
  - C. Recency of Experience (61.57)
  - D. Weight and Balance including adding and removing weight and the shifting of weight.
2. INTRODUCTION
  - A. Aircraft Preflight Action
 

The student will be taught the preflight procedures needed prior to conducting a safe night operation. Items to be covered will include:

    - (1) Electrical systems
    - (2) Lighting systems
  - B. Takeoffs
 

The student will become acquainted with the proper visual references for night takeoffs, including the possibility of the loss of ground References.
  - C. Landings
 

The student will become acquainted with proper visual references and will execute normal and crosswind landings from both Power-on and Power-off approaches.
  - D. Emergency Procedures.
  - E. Physiological Effects
 

The student should be made aware of the special problems of hypoxia and depth perception.

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## F. Controlled Airport Operations

## 3. POSTFLIGHT DISCUSSION

## COMPLETION STANDARDS:

At the conclusion of this lesson, the student will demonstrate an adjustment of visual references for night takeoffs and landings. The student will also correctly answer questions pertinent to the aircraft's electrical and lighting systems and demonstrate that he can safely act as pilot in command during local night flight.

FLIGHT LESSONS 26 and 27 - Primary Aircraft

INSTRUCTION

## OBJECTIVES:

During the two dual lessons, the student will review and gain proficiency in night flight operations.

## CONTENT:

## 1. PREFLIGHT ORIENTATION

## 2. REVIEW

- A. Takeoffs
- B. Steep Turns
- C. Minimum Controllable Airspeed
- D. Landings
- E. Night Operations at controlled airports and airports within 25 NM

## 3. POSTFLIGHT DISCUSSION

## COMPLETION STANDARDS:

The two lessons are complete when the student has conducted the assigned flights. During the lessons, the student should attempt to gain proficiency in his night flight abilities. All landing approaches and initial climbs after takeoff should be stabilized. Altitude control during steep turns and flight at minimum controllable airspeed should be within 150 feet.

FLIGHT LESSON 28 - Primary Aircraft

INSTRUCTION

## OBJECTIVES:

This progress check, conducted by the Chief Instructor or his assistant, evaluates the student's ability to perform local night flight operations with the competency of a commercial pilot. Safety in night flight operations, cross-country procedures and emergency situations will be emphasized.

## CONTENT:

## 1. PREFLIGHT ORIENTATION

## 2. REVIEW

- A. Preflight Action
- B. Takeoff
- C. Steep Turns
- D. Minimum Controllable Airspeed
- E. Emergency Procedures
- F. Landing

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## G. Controlled and Uncontrolled Airport Operations

## 3. POSTFLIGHT DISCUSSION

## COMPLETION STANDARDS:

The student will demonstrate that he can safely act as pilot in command in the night environment, which includes the use of the proper procedures and the handling of emergency situations.

INSTRUMENT FLIGHT - MCCC Instrument Training Device  
FLIGHT LESSON 29

INSTRUCTION

## OBJECTIVES:

During the lesson, the student is introduced to the instrument training device. Additionally, he will be introduced to basic attitude instrument flight in the training device and will learn the technique for establishing power settings for the various phases of flight.

## CONTENT:

## 1. PREFLIGHT ORIENTATION

This includes preflight inspection of the training device, its operating characteristics, and the cabin. The student will be shown the locations and procedures for operation of throttle, propeller, mixture control, trim control, and all flight instruments.

## 2. INTRODUCTION

- A. Engine Start
- B. Basic Instrument Flight Maneuvers
  - (1) Constant airspeed climb
  - (2) Straight-and-level flight
  - (3) Standard-rate turns and timed turns
  - (4) Power Settings
  - (5) Constant Airspeed
  - (6) Constant Airspeed changes
- C. Pattern A
- D. Configuration and airspeed changes
- E. Steep turns

## 3. POSTFLIGHT DISCUSSION

## COMPLETION STANDARDS:

The student will display understanding of the use of the checklist, safety considerations of engine starting, instrument indications on the ground, and run-up. The student will be required to display understanding of the proper procedures for entering and executing the basic instrument flight maneuvers. Roll out from turns should be within 10° of the preselected heading. Altitude will be held within 100 feet, and airspeed within 10 knots of assigned airspeed.

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INSTRUMENT FLIGHT - MCCC Instrument Training Device  
FLIGHT LESSON 30

INSTRUCTION

## OBJECTIVES:

The student will acquire additional proficiency in altitude instrument flying and he will learn the basics of IFR radio communications.

1. PREFLIGHT ORIENTATION
2. REVIEW
  - A. Starting the Engine
  - B. Level Off Procedures
  - C. Power Settings
  - D. Straight and Level
  - E. Standard-Rate Turns
3. INTRODUCTION
  - A. Enroute Cruise Descent, Approach Cruise Descent and Missed Approach Climb
  - B. Pattern B
  - C. NOS and Jeppesen Approach Plates
4. POSTFLIGHT DISCUSSION

## COMPLETION STANDARDS:

The student will be able to perform leveling off procedures, straight and level flight and standard rate turns. The student will also be familiar with IFR communications procedures.

INSTRUMENT FLIGHT - MCCC Instrument Training Device  
FLIGHT LESSON 31

INSTRUCTION

## OBJECTIVES:

During this lesson, the student will practice basic attitude instrument flight to gain added proficiency. Additionally, he will learn the basic techniques used to control airplane attitude using only the emergency panel. He also will learn to comply with the provisions of FAR 91.185 concerning communications failure.

## CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
  - A. Power Settings
    - (1) Enroute cruise and descent
    - (2) Approach cruise
    - (3) Descent and missed approach climb
  - B. Pattern B
3. POSTFLIGHT DISCUSSION

The student will acquire further proficiency in IFR scan techniques. The student will also demonstrate the ability to read and understand instrument approach plates. Communication failure procedures shall be explained by the student to the satisfaction of the instructor.

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INSTRUMENT FLIGHT - MCCC Instrument Training Device  
FLIGHT LESSON 32

INSTRUCTION

OBJECTIVES:

In this lesson, the student will review maneuvers and procedures learned in previous lessons. In addition to review items, the student will be introduced to VOR and ADF orientation procedures and will learn to orient himself from an unknown position in respect to VHF and low frequency navigational aids. From the established position, the student will learn how to proceed to the navigational fixes via simulated clearance routes prescribed by the instructor.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
  - A. Enroute Cruise and Descent, Approach Cruise and Descent, and Climbs With Proper Power Settings
3. INTRODUCTION
  - A. VOR Orientation
  - B. VOR Holding Patterns
  - C. Radio Communication Procedures
  - D. IFR Pretakeoff Checklist
4. POSTFLIGHT DISCUSSION

COMPLETION STANDARDS:

The student will demonstrate the ability to locate himself and proceed to the hold via the instructor's clearance. During the radio navigation and orientation procedures the student will be expected to display proficiency in maintaining airspeed within 5 knots of the appropriate airspeed during the performance of all maneuvers. Loss or gain of altitude will be restricted to within 100 feet and heading controlled within 5° while in straight flight configuration. Understanding of VOR holds and holding pattern entries is also required.

INSTRUMENT FLIGHT - MCCC Instrument Training Device  
FLIGHT LESSON 33

INSTRUCTION

OBJECTIVES:

In this lesson the student will review VOR and ADF navigational procedures including bracketing, tracking and VOR holds. The student will also be introduced to ADF tracking and holds. Simulated wind conditions of up to 20 knots should be used.

CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
  - A. VOR Tracking and Bracketing
  - B. VOR Holds
3. INTRODUCTION
  - A. ADF Tacking and Bracketing
  - B. ADF Holds

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## 4. POSTFLIGHT DISCUSSION

## COMPLETION STANDARDS:

The student should demonstrate understanding and proficiency of VOR and ADF bracketing, tracking and holding patterns. Throughout the maneuvers, airspeed should be maintained within 5 knots and attitude within 100 feet. These conditions should be met in up to a 20 knot simulated crosswind. The student must have ten (10) hours logged on the simulator to proceed.

INSTRUMENT FLIGHT - MCCC Instrument Training Device  
FLIGHT LESSON 34

INSTRUCTION

## OBJECTIVES:

This progress check, conducted by the Chief Instructor or his assistant, evaluates the student's performance of all maneuvers learned in previous lessons.

## CONTENT:

1. PREFLIGHT ORIENTATION
2. REVIEW
  - A. Pattern B
  - B. Scan Proficiency
  - C. Power Settings
  - D. NOCA and Jeppesen Approach Plates
  - E. VOR Holds, Tracking and bracketing
  - F. ADF Holds
  - G. Tracking ADF and bracketing

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